

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

Please amend the claims as follows:

1. (previously presented) A differential load driving circuit comprising:
a plurality of power switches selectively coupled to a load to supply current to said load;
a plurality of power switch driving circuits operable to control the conduction state of said power switches and to selectively couple at least one of said plurality of power switches to a PWM signal;
at least one linear current source; and
at least one current source switch operable to couple said at least one linear current source to said load;
wherein said linear current source is coupled to said load to deliver current to said load during low current conditions at said load, and said PWM signal coupled to said load to deliver current to said load during high current conditions at said load, wherein a switchover point between said linear current source and said PWM signal is selected to achieve a specified ripple current at said load.
2. (original) A differential load driving circuit as claimed in claim 1, said plurality of power switches forming an H-bridge differential load driving circuit.

3. (original) A differential load driving circuit as claimed in claim 1, further comprising two current sources, wherein one said current source being coupled to said load during a first low current time period and the other said current source being coupled to said load during a second low time period.

4. (previously presented) An H-Bridge load driving circuit, comprising:
four power switches forming an H-Bridge circuit selectively coupled to a load to supply current to said load;

a plurality of power switch driving circuits operable to control the conduction state of said power switches and to selectively couple at least two of said plurality of power switches to a PWM signal;

at least one current source; and

at least one current source switch operable to couple said at least one current source to said load;

wherein said H-Bridge circuit having a first mode in which said current source is coupled to said load to supply current to said load and a second mode in which at least two of said power switches are coupled to said PWM signal to supply current to said load, wherein a switchover point between said first and second modes is selected to achieve a specified ripple current at said load.

5. (previously presented) An H-Bridge load driving circuit as claimed in claim 4, wherein said first mode is a low current mode and said current source supplies a linear current to said load.

6. (previously presented) An H-Bridge load driving circuit as claimed in claim 4, wherein said second mode is a high current mode.

7. (previously presented) An H-Bridge load driving circuit, comprising:
four power switches forming an H-Bridge circuit selectively coupled to a load to supply current to said load;
at least one current source; and
at least one current source switch operable to couple said at least one current source to said load;
wherein said H-Bridge circuit is adapted to operate in a linear mode using said at least one current switch to enable said current source and a PWM mode wherein said switches are controlled with a PWM signal, wherein a switchover point between said linear mode and said PWM mode is selected to achieve a specified ripple current at said load.

8. (original) An H-Bridge load driving circuit as claimed in claim 7, further comprising a plurality of power switch driving circuits operable to control the conduction state of said power switches and to selectively couple at least two of said plurality of power switches to a PWM signal.

9. (original) An H-bridge load driving circuit as claimed in claim 7, further comprising at least one filter circuit coupled between at least two of said four power switches and said load.

10. (previously presented) An H-Bridge load driving circuit as claimed in claim 7, wherein said load comprises a thermal electrical cooler.

11. (currently amended) A differential load driving circuit comprising:

a plurality of power switches selectively coupled to a thermal electric cooler load to supply current to said load;

a plurality of power switch driving circuits operable to control the conduction state of said power switches and to selectively couple at least one of said plurality of power switches to a PWM signal;

at least one current source; and

at least one current source switch operable to couple said at least one current source to said load;

wherein said differential driving circuit ~~has~~ having a first mode in which said at least one current source switch is enabled to couple said current source to said load to supply current to said load and a second mode in which at least two of said power switches are coupled to said PWM signal to supply current to said load, wherein a switchover point between said first and second modes is selected to achieve a specified ripple current at said load.

12. (currently amended) A differential load driving circuit as claimed in claim 11, said plurality of power switches forming an H-Bridge differential load driving circuit.

13. (currently amended) A differential load driving circuit as claimed in claim 11, said first mode comprising a low current mode in which the direction of current through the load defines a cooling mode.

14. (currently amended) A differential load driving circuit as claimed in claim 11, said first mode comprising a low current mode in which the direction of current through the load defines a heating mode.

15. (currently amended) A differential load driving circuit as claimed in claim 11, said second mode comprising a high current mode in which the direction of current through the load defines a cooling mode.

16. (currently amended) A differential load driving circuit as claimed in claim 11, said second mode comprising a high current mode in which the direction of current through the load defines a heating mode.

17. (currently amended) A differential load driving circuit as claimed in claim 1 ~~wherein~~, wherein at said switchover point, a current associated with said PWM signal is slightly less than a current associated with said linear current source.

18. (new) A differential load driving circuit as claimed in claim 1, wherein said specified ripple current is above zero.

19. (new) A differential load driving circuit as claimed in claim 1, further comprising:

a controller operable to control said switch driving circuits and said current source switch, wherein said controller comprises an input representing said crossover point.